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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/808,619

03/25/2004

Fuyuki Okamoto

17566

6078

23389 7590 01/29/2007  
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EXAMINER

FLANAGAN, KRISTA M

ART UNIT

PAPER NUMBER

2817

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
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3 MONTHS

01/29/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

<b>Office Action Summary</b>	Application No. 10/808,619	Applicant(s) OKAMOTO, FUYUKI	
	Examiner Krista M. Flanagan	Art Unit 2817	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 25 October 2006.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.  
     4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 12 and 13 is/are allowed.
- 6) ☒ Claim(s) 1-5 and 7-11 is/are rejected.
- 7) ☒ Claim(s) 6 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
     a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

***Response to Arguments***

1. Applicant's arguments filed 10/25/2006 have been fully considered but they are not persuasive.
2. Applicant argues that the reference fails to teach a variable capacitor. Examiner asserts that while Applicant's statement that Segawa fails to explicitly disclose a variable capacitor is true, Segawa does disclose a resonant or tuned circuit. It is well known in the art to use a variable capacitor in the design to vary the resonant frequency - It is most commonly known to use a variable capacitor for this purpose.
3. While the design of Segawa discloses a resonant circuit with an active variable inductor whose inductance can be changed by changing the transconductance of a transconductance circuit and a capacitor in order to control the frequency characteristics, the Examiner asserts that a resonant circuit with a variable capacitor as claimed in the Applicant's invention would be an obvious substitution and would not change the functionality of the design of Segawa.
4. Examiner therefore asserts that the design of Segawa does teach the claimed amplifier circuit including a resonant circuit, which inherently comprises an inductor and a capacitor with one of the elements being variable to control the frequency characteristics.

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1-5 and 7-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent Application No. US2003/0184378 A1 to Segawa, of record.

7. Regarding claims 1, 2, 5 and 7 Segawa discloses a differential amplifier having two resonant circuits (25 and 24) each with an inductor (25\_1 and 24\_1) and a capacitor (25\_2 and 24\_2) connected between two potentials, VDD and current source 21 and ground via NMOS transistors (23 and 22) with complementary inputs IN- and IN+ as disclosed on page 4, paragraphs 0080 and 0081. The circuit has two output terminals (OUT- and OUT+), which output signals from each of the corresponding resonant circuits (OUT-: 25 and OUT+: 24). NMOS transistors (23 and 22) are connected between the parallel resonant circuits and constant current source (21). Amplified signals of the complementary signal IN- and IN+ are output to the output terminals. Segawa discloses RLC resonant circuits with active inductors (25\_1 and 24\_1) that comprise capacitors ( $C_L$ ), which can be varied. Segawa fails to disclose an RLC resonant circuit with a variable capacitor to vary the capacitance and hence the resonant frequency. However, an RLC circuit with a variable capacitor is well known and widely used in the art. It would have been obvious for one of ordinary skill in the art to use an RLC circuit with a variable capacitor or varactor element, which is widely substituted in place of a variable capacitor, to vary the resonant frequency without straying from the design of Segawa. Inherently, by changing the capacitance the impedance frequency characteristics will be adjusted.

8. Regarding claims 3 and 8, Segawa discloses a differential amplifier circuit where transistor 23 drain is connected to the output, source is connected to ground through current source 21 and gate is connected to input. Transistor 22 is connected similarly.

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9. Regarding claims 4 and 9, Segawa fails to disclose a bias transistor which using a bias voltage at a fixed value to provide a fixed current however Segawa does disclose a constant current source, 21 to provide a fixed current. It is well known in the art to use a transistor with the gate biased, source connected to ground and drain connected to a differential pair to provide a constant current source.

10. Regarding claims 10 and 11, Segawa discloses a differential amplifier for use on a semiconductor chip on page 4, paragraph 0082, in lines 6-10.

***Allowable Subject Matter***

11. Claims 12 and 13 allowed.

12. Claim 6 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

***Conclusion***

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Krista M. Flanagan whose telephone number is (571) 272-2203. The examiner can normally be reached on Monday - Friday, 8 - 4:30.

14. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert J. Pascal can be reached on (571) 272-1769. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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15. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

K. Flanagan  
20070119



BENNY T. LEE  
PRIMARY EXAMINER  
ART UNIT 2817